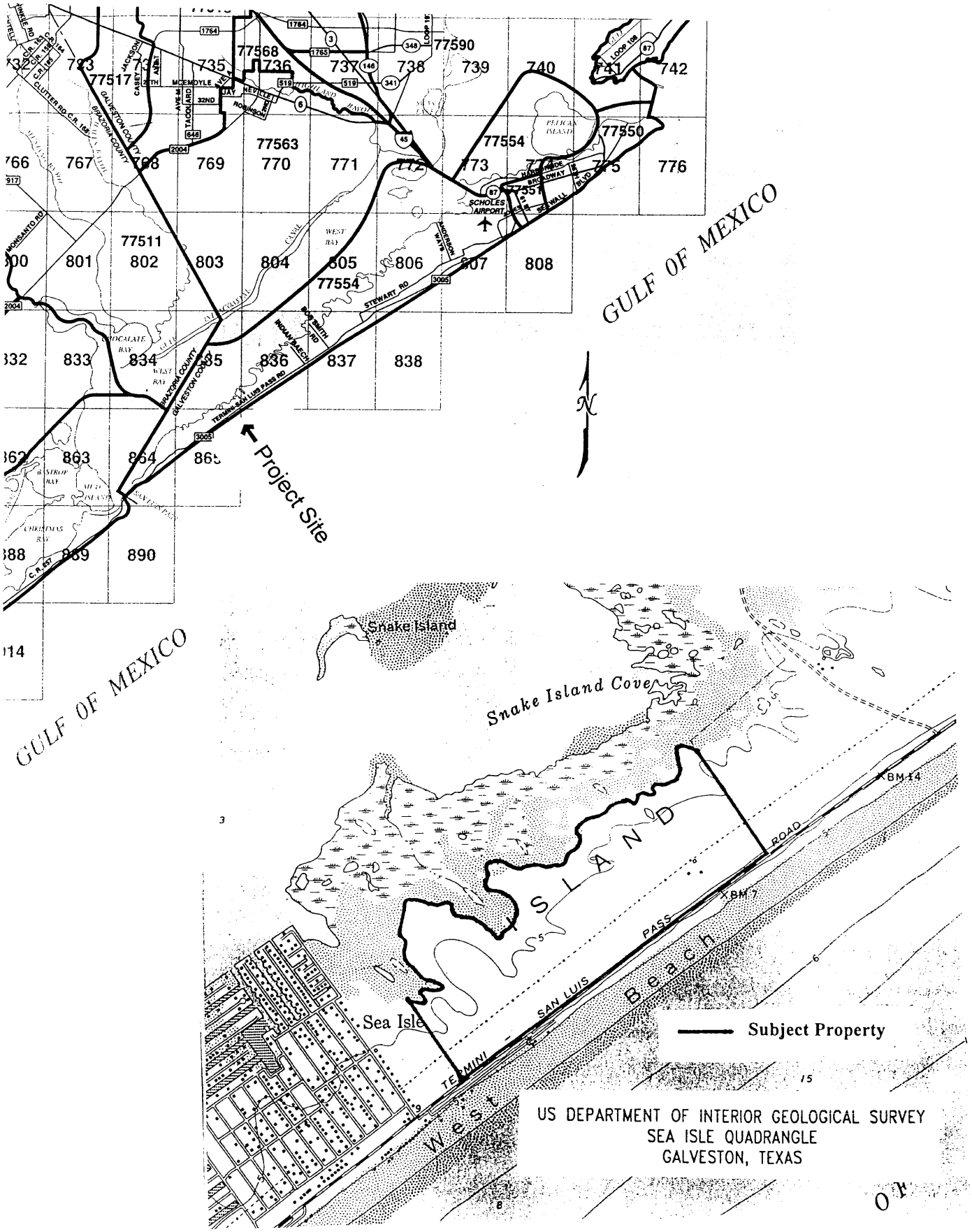

22607(01) rev.
Ross Novelli, Jr.
Sheet 1 of 23

SHELMARK ENGINEERING
8419 EF LOWRY EXPRESSWAY - SUITE 120
TEXAS CITY, TEXAS 77591
409-935-9986 ❖ FAX: 409-938-8706

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
01-29-04	SITES	NOTED	P01-158	01

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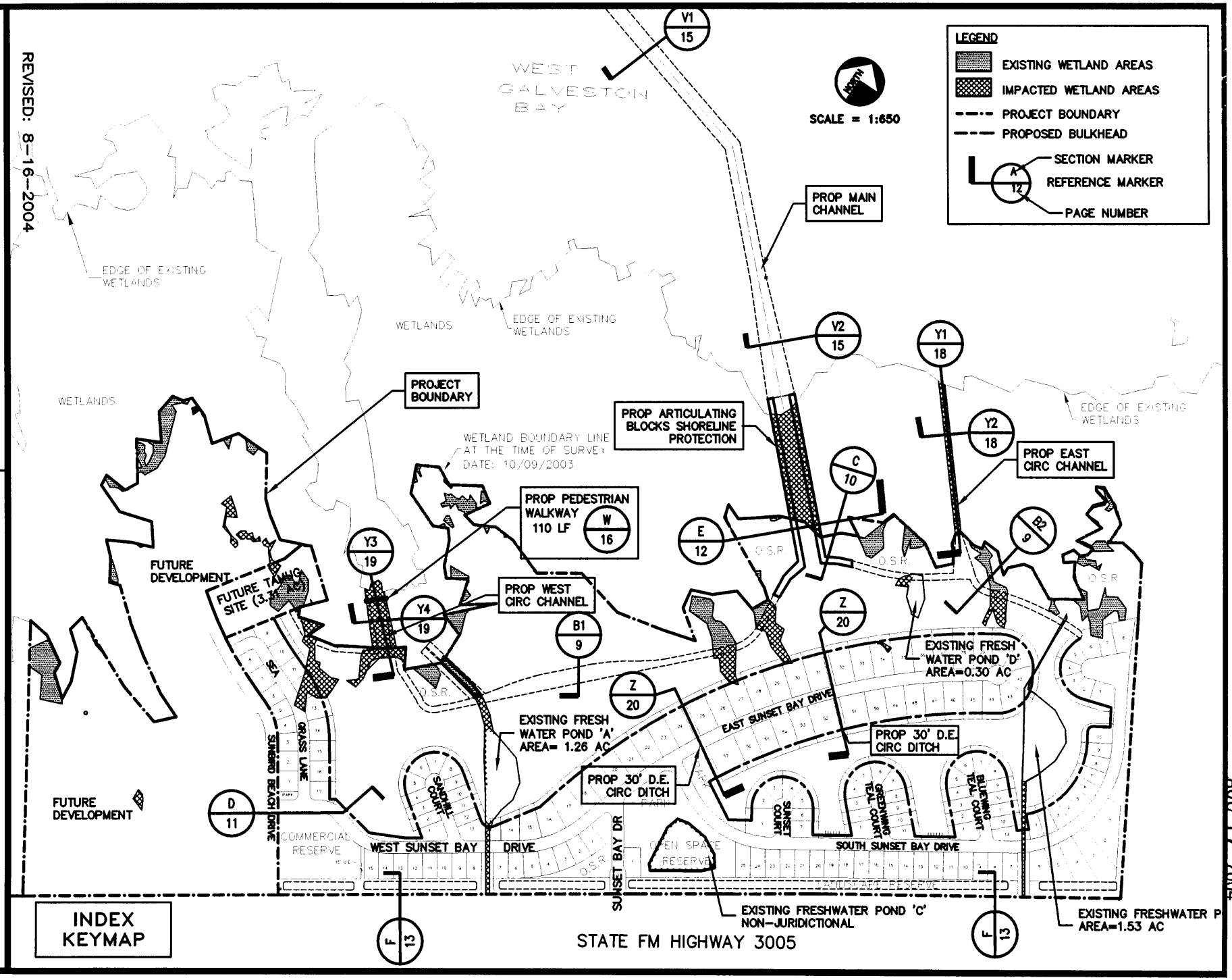

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	X1-158BASE-REV3	1:650'	P01-158	02

AUG 17 2004

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409-935-9986 ❖ FAX: 409-938-8706

REVISED: 8-16-2004

TABLE 1:
IMPACTED FRESHWATER WETLAND AREAS

NO.	AREAS		
FW1	0.060	AC	FILLED
FW2	0.149	AC	FILLED
FW3	0.068	AC	FILLED
FW4	0.109	AC	FILLED
FW5	0.534	AC	EXCAVATED
FW6	0.346	AC	EXCAVATED
FW7	0.027	AC	EXCAVATED
FW8	0.097	AC	EXCAVATED
FW9	0.209	AC	EXCAVATED
FW10	0.100	AC	EXCAVATED

TOTAL: 1.51 ACRES

TABLE 2:
IMPACTED INTERTIDAL WETLAND AREAS

NO.	AREAS		
T1	0.823	AC	EXCAVATED
T2	0.366	AC	EXCAVATED
T3	0.460	AC	EXCAVATED
T4	0.313	AC	EXCAVATED
T5	0.773	AC	EXCAVATED
T6	1.841	AC	EXCAVATED
T7	0.517	AC	EXCAVATED

TOTAL 5.09 AC

TABLE 3:
IMPACTED FRESHWATER POND AREAS

NO.	AREAS	
A	0.060	AC
C	0.301	AC
D	0.068	AC

TOTAL: 3.10 ACRES

SCALE = 1:650

LEGEND
- EXISTING WETLAND AREAS
- IMPACTED WETLAND AREAS
- PROJECT BOUNDARY
- PROPOSED BULKHEAD

ALL WETLANDS INDICATED ON PLANS TAKEN FROM WETLAND DETERMINATION & DELINEATION REPORT ON SUNSET COVE BY ANDY R. BOUSE – WETLANDS CONSULTANT.

ABBREVIATIONS:

FW FRESHWATER
T INTERTIDAL

WEST GALVESTON BAY

WETLANDS

EDGE OF EXISTING WETLANDS

WETLAND BOUNDARY LINE AT THE TIME OF SURVEY DATE: 10/09/2003

PROP MAIN CHANNEL

PROP EAST CIRC CHANNEL

PROP WEST CIRC CHANNEL

FUTURE DEVELOPMENT

FUTURE TAKING SITE (3.3 AC)

FUTURE DEVELOPMENT

EXISTING FRESH WATER POND 'A' AREA= 1.26 AC

EXISTING FRESH WATER POND 'D' AREA=0.30 AC

PROP 30' D.E. CIRC DITCH

PROP 30' D.E. CIRC DITCH

EXISTING FRESHWATER POND 'C' NON-JURIDICTIONAL

EXISTING FRESHWATER AREA=1.53 AC

O.S.R.

SEA GRASS LANE

SUNBIRD BEACH DRIVE

SANDPIPER COURT

COMMERCIAL RESERVE

WEST SUNSET BAY DRIVE

SUNSET BAY DR

GREEN SPACE RESERVE

EAST SUNSET BAY DRIVE

SOUTH SUNSET BAY DRIVE

SUNSET COURT

GREENWING TEAL COURT

BLUEWING TEAL COURT

T1 T2 T3 T4 T5 T6 T7

FW1 FW2 FW3 FW4 FW5 FW6 FW7 FW8 FW9 FW10

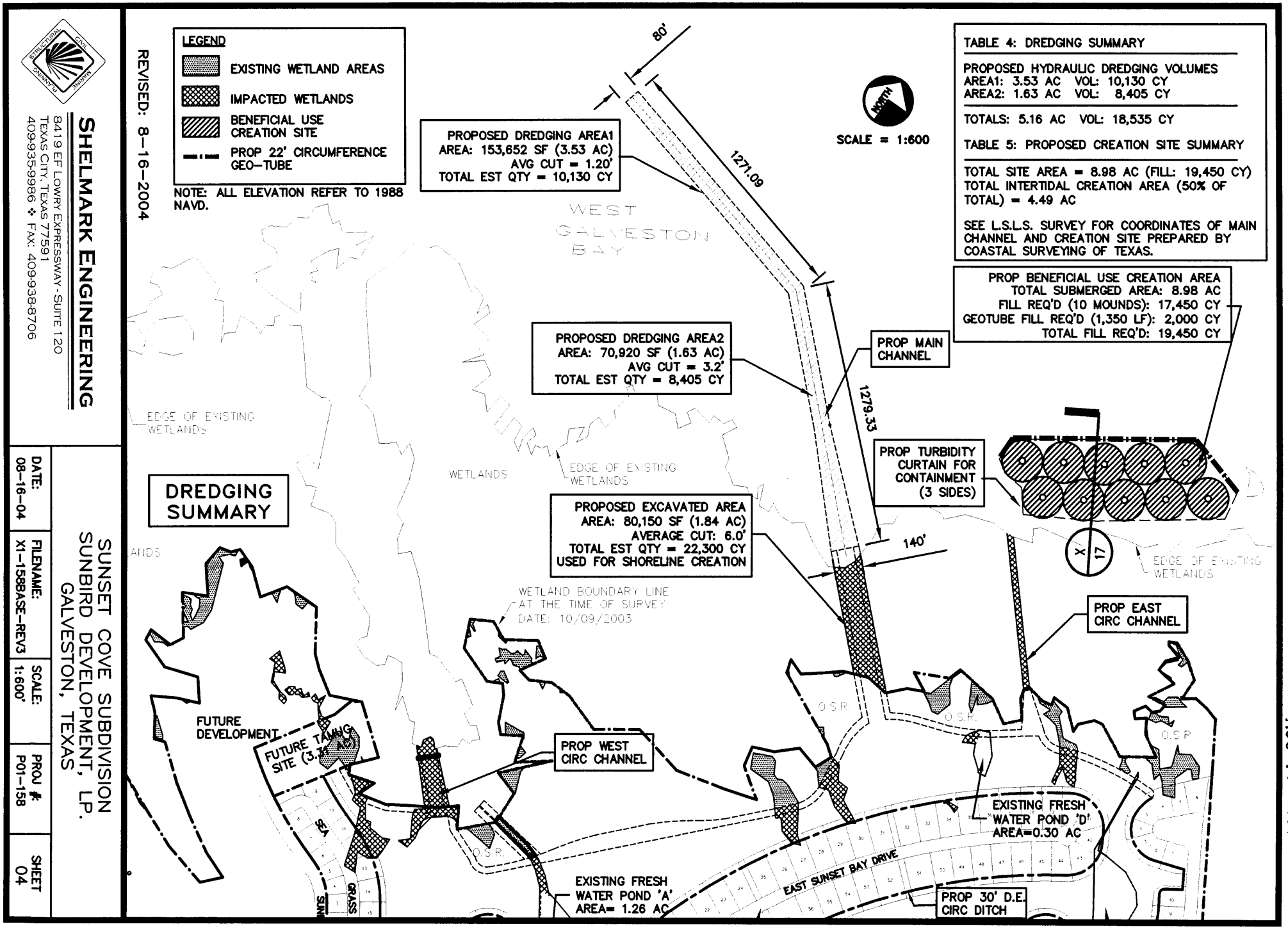
WETLANDS KEYMAP

STATE FM HIGHWAY 3005

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	X1-158BASE-REV3	1:650'	P01-158	03

AUG 17 2004


LEGEND
EXISTING WETLAND AREAS
IMPACTED WETLANDS
BENEFICIAL USE CREATION SITE
PROP 22' CIRCUMFERENCE GEO-TUBE
NOTE: ALL ELEVATION REFER TO 1988 NAVD.
REVISED: 8-16-2004
80'
1271.09
1279.33
140'
NORTH
SCALE = 1:600
TABLE 4: DREDGING SUMMARY
PROPOSED HYDRAULIC DREDGING VOLUMES
AREA1: 3.53 AC VOL: 10,130 CY
AREA2: 1.63 AC VOL: 8,405 CY
TOTALS: 5.16 AC VOL: 18,535 CY
TABLE 5: PROPOSED CREATION SITE SUMMARY
TOTAL SITE AREA = 8.98 AC (FILL: 19,450 CY)
TOTAL INTERTIDAL CREATION AREA (50% OF TOTAL) = 4.49 AC
SEE L.S.L.S. SURVEY FOR COORDINATES OF MAIN CHANNEL AND CREATION SITE PREPARED BY COASTAL SURVEYING OF TEXAS.
PROPOSED DREDGING AREA1
AREA: 153,652 SF (3.53 AC)
AVG CUT = 1.20'
TOTAL EST QTY = 10,130 CY
PROPOSED DREDGING AREA2
AREA: 70,920 SF (1.63 AC)
AVG CUT = 3.2'
TOTAL EST QTY = 8,405 CY
PROPOSED EXCAVATED AREA
AREA: 80,150 SF (1.84 AC)
AVERAGE CUT: 6.0'
TOTAL EST QTY = 22,300 CY
USED FOR SHORELINE CREATION
PROP BENEFICIAL USE CREATION AREA
TOTAL SUBMERGED AREA: 8.98 AC
FILL REQ'D (10 MOUNDS): 17,450 CY
GEOTUBE FILL REQ'D (1,350 LF): 2,000 CY
TOTAL FILL REQ'D: 19,450 CY
PROP MAIN CHANNEL
PROP TURBIDITY CURTAIN FOR CONTAINMENT (3 SIDES)
PROP EAST CIRC CHANNEL
PROP WEST CIRC CHANNEL
DREDGING SUMMARY
WEST GALVESTON BAY
EDGE OF EXISTING WETLANDS
WETLANDS
WETLAND BOUNDARY LINE AT THE TIME OF SURVEY DATE: 10/09/2003
FUTURE DEVELOPMENT
FUTURE TANKING SITE (3.31 AC)
O.S.R.
EXISTING FRESH WATER POND 'A' AREA= 1.26 AC
EXISTING FRESH WATER POND 'D' AREA=0.30 AC
EAST SUNSET BAY DRIVE
PROP 30' D.E. CIRC DITCH
SEA GRASS
SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS
DATE: 08-16-04
FILENAME: X1-158BASE-REV3
SCALE: 1:600'
PROJ #: P01-158
SHEET 04
SHELMARK ENGINEERING
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TEXAS CITY, TEXAS 77591
409-935-9986 ❖ FAX: 409-938-8706

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REVISED: 8-16-2004

LEGEND
- EXISTING WETLAND AREAS
- IMPACTED WETLANDS
- CONSERVATION EASEMENT (O.S.R)
- SHORELINE CREATION AREAS
- SHORELINE CREATION AREAS W/ARTICULATING BLOCKS

TABLE 6: FRESHWATER POND CREATION SUMMARY

NO.	SURFACE AREA	SHELF AREA
1	0.33	0.21
2	0.52	0.33
3	0.49	0.31
4	1.76	1.07
5	0.36	0.23

TOTAL NEW POND AREAS: 3.45 ACRE
TOTAL NEW WETLAND AREAS: 2.16 ACRE

TABLE 7: NEW INTERTIDAL CREATION AREAS

NO.	AREAS
AREA1	0.46 AC
AREA2	2.52 AC
AREA3	1.22 AC
AREA4	1.34 AC
TOTAL AREAS	5.54 AC

TABLE 8: CONSERVATION EASEMENT AREAS

AREA1	0.87 AC
AREA2	18.27 AC
AREA3	2.45 AC
AREA4	5.27 AC
AREA5	4.08 AC
TOTAL EASEMENT AREAS	30.94 AC

SCALE = 1:650

WEST GALVESTON BAY

EDGE OF EXISTING WETLANDS

WETLANDS

WETLAND BOUNDARY LINE AT THE TIME OF SURVEY DATE: 10/09/2003

PROP MAIN CHANNEL

PROP CONSERVATION EASEMENT AREA3 AREA = 2.45 AC

PROP CONSERVATION EASEMENT AREA4 AREA = 5.27 AC

PROP SHORELINE CREATION W/ARTICULATING BLOCKS AREA4 = 1.34 AC

820'

PROP EAST CIRC CHANNEL

PROP SHORELINE CREATION AREA3 = 1.22 AC

PROP CONSERVATION EASEMENT AREA1 AREA = 0.87 AC

PROP CONSERVATION EASEMENT AREA2 AREA = 18.27 AC

PROP CONSERVATION EASEMENT AREA5 AREA = 4.08 AC

FUTURE DEVELOPMENT

FUTURE TANNG SITE (3.7

PROP WEST CIRC CHANNEL

PROP SHORELINE CREATION AREA2 = 2.52 AC

445' ARTI. BLKS

EXISTING FRESH WATER POND 'D' AREA=0.30 AC

EAST SUNSET BAY DRIVE

EXISTING FRESH WATER POND 'A' AREA= 1.26 AC

PROP 30' D.E. CIRC DITCH

PROP SHORELINE CREATION AREA1 = 0.46 AC

FUTURE DEVELOPMENT

SUNBIRD BEACH DRIVE

GRASS LANE

SANDPIPER COURT

SUNSET COURT

GREENWING TEAL COURT

BLUEWING TEAL COURT

COMMERCIAL RESERVE

WEST SUNSET BAY DRIVE

SUNSET BAY DR

OPEN SPACE RESERVE

SOUTH SUNSET BAY DRIVE

PROP FRESHWATER POND 1 SURFACE AREA: 0.33 AC SHELF AREA: 0.21 AC

PROP FRESHWATER POND 2 SURFACE AREA: 0.52 AC SHELF AREA: 0.33 AC

PROP FRESHWATER POND 3 SURFACE AREA: 0.49 AC SHELF AREA: 0.31 AC

EXISTING FRESHWATER POND 'C' NON-JURIDICTIONAL

STATE FM HIGHWAY 3005

PROP FRESHWATER POND 4 SURFACE AREA: 1.76 AC SHELF AREA: 1.07 AC

EXISTING FRESHWATE AREA=1.53 AC

PROP FRESHWATER POND 5 SURFACE AREA: 0.36 AC SHELF AREA: 0.23 AC

MITIGATION SUMMARY

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	X1-158BASE-REV3	1:650'	P01-158	05

AUG 17 20

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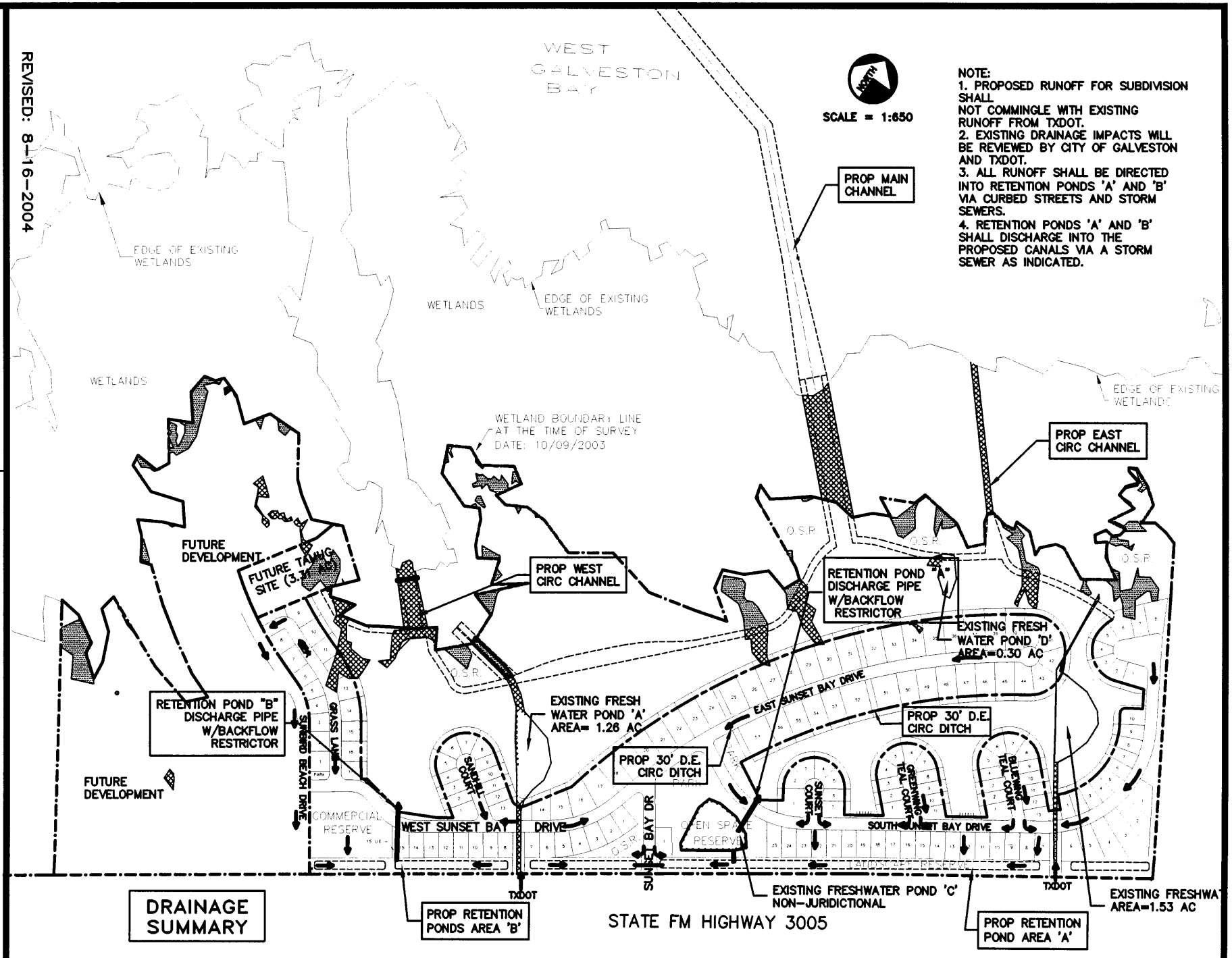


DRAINAGE SUMMARY

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	X1-158BASE-REV3	1:650'	P01-158	06

GRAPHIC SCALE

1000 0 500 1000 2000 4000

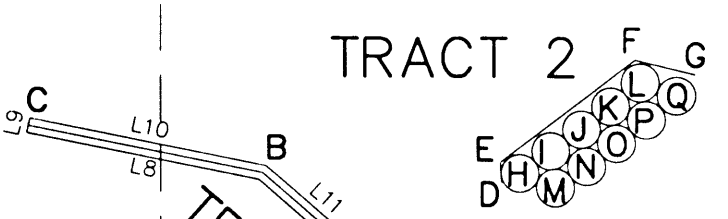
(IN FEET)

1 inch = 1000 ft.

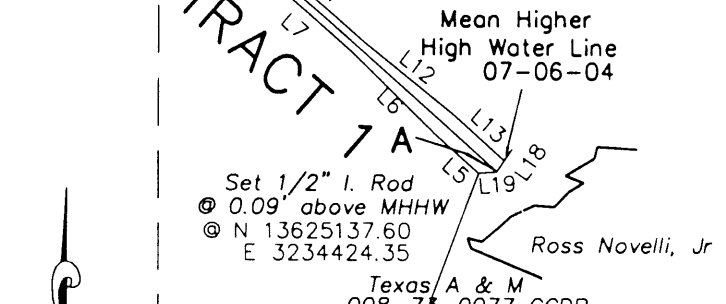
TRACT 2

Being a proposed 1328 foot Geo-tube defined by points D, E, F & G together with 10-100 foot radius creation mounds out of Submerged Tract 47 in West Galveston Bay, Galveston County, Texas, and being described by center coordinates on attached EXHIBIT A

Snake Island
Audubon Society Lease
West Galveston Bay
Submerged Area Map 31



Mean Higher
High Water Line
07-06-04



Set 1/2" I. Rod
@ 0.09' above MHHW
@ N 13625137.60
E 3234424.35

Ross Novelli, Jr
Texas A & M
008-73-0077 GCDR

TRACT 1

Being a boat channel of varying width out of Galveston Bay Submerged Tracts 46 and 47, Galveston County, Texas, said channel being more particularly described by metes and bounds as follows;

COMMENCING at NGS Monument G 460 Reset;

THENCE N 20°40'23" E, a distance of 4164.89 feet to a point on the Southerly Mean Higher High Water Line of West Galveston Bay and the POINT OF BEGINNING of the said channel easement;

THENCE the following courses and distances:

LINE TABLE		
LINE	FEET	BEARING
L5	299.91	N48°54'55"W
L6	600.93	N46°04'18"W
L7	666.74	N48°54'55"W
L8	1233.04	N78°27'19"W
L9	80.00	N11°32'41"E
L10	1254.13	S78°27'19"E
L11	687.83	S48°54'55"E
L12	600.73	S51°48'06"E
L13	359.13	S48°54'55"E
L18	70.93	S34°27'19"W
L19	96.85	S85°11'15"W

to the POINT OF BEGINNING, and containing 6.164 Acres.

1"=1000'

N20°40'23"E
4164.89'

LICENSED STATE LAND SURVEYOR

STATE FM HIGHWAY 3005

NGS Monument
G 460
N 13621154.13
E 3233204.29

G-460 RESET (Convergence 01 56 29.32726)
(Combined Scale Factor 0.999868367)

1) ALL COORDINATES REFER TO THE STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, AS DEFINED BY ARTICLE 21.071 OF THE NATURAL RESOURCES CODE OF THE STATE OF TEXAS, 1983 DATUM (1993 ADJUSTMENT) AS TIED TO NGS MONUMENT G-460 RESET (GIVEN IN FEET).
2) ALL DISTANCES ARE GRID DISTANCES IN FEET AND VARAS.
3) MEAN HIGHER HIGH WATER LINE ESTABLISHED ON JULY 6, 2004.
4) TIDE DATA COLLECTED ON JUNE 22-25, 2004 @ SITE AS SHOWN.

Applicant: Ross Novelli, Jr
4171 Pirates Beach, Galveston, Texas 77554
PROJECT: Sunset Cove
Prepared by Sidney Bouse, LSLS- 07-20-04
PROJECT LOCATION: Galveston County,
West Galveston Bay, Tracts 46 and 47

COASTAL SURVEYING OF TEXAS
Sidney Bouse, RPLS 5287, LSLS
P.O. Box 877 Galveston, Texas 77553
409-740-1517

TRACT 1

BOAT CHANNEL

Centerline Coordinates

A	N	13,625,059.4 (ft)
	E	3,234,771.4 (ft)
B	N	13,626,139.9 (ft)
	E	3,233,531.7 (ft)
C	N	13,626,388.8 (ft)
	E	3,232,313.3 (ft)

TRACT 2

GEO TUBE Coordinates

D	N	13610033.6504
	E	3228211.7403
E	N	13610144.5395
	E	3228204.6953
F	N	13610690.5643
	E	3228915.7909
G	N	13610615.5722
	E	3229228.1031

TRACT 2

100 FOOT RADIUS MOUNDS

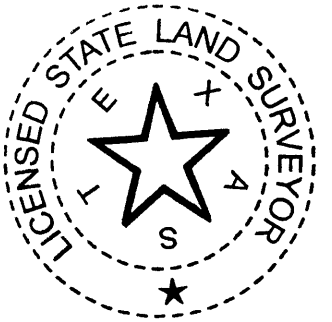
CENTER COORDINATES

H	N	13610085.7219
	E	3228309.6479
I	N	13610204.6964
	E	3228472.5610
J	N	13610321.3287
	E	3228634.7179
K	N	13610444.7215
	E	3228788.7259
L	N	13610571.4891
	E	3228942.9547
M	N	13610009.1119
	E	3228496.2687
N	N	13610122.2035
	E	3228661.6637
O	N	13610246.0215
	E	3228819.5095
P	N	13610373.1975
	E	3228976.6605
Q	N	13610502.8788
	E	3229133.9781

1.) ALL COORDINATES REFER TO THE STATE PLANE COORDINATE SYSTEM, SOUTH CENTRAL ZONE, AS DEFINED BY ARTICLE 21.071 OF THE NATURAL RESOURCES CODE OF THE STATE OF TEXAS, 1983 DATUM (1993 ADJUSTMENT) AS TIED TO NGS MONUMENT G-460 RESET (GIVEN IN FEET).
2). ALL DISTANCES ARE GRID DISTANCES IN FEET
3). MEAN HIGHER HIGH WATER LINE ESTABLISHED ON JULY 6, 2004.
4). TIDE DATA COLLECTED ON JUNE 22-25, 2004 @ SITE AS SHOWN.

NGS Monument
G 460
N 13621154.13
E 3233204.29

G-460 RESET (Convergence 01 56 29.32726)
(Combined Scale Factor 0.999868367)



COASTAL SURVEYING OF TEXAS

Sidney Bouse, RPLS 5287, LSLS
P.O. box 877 Galveston, Texas 77553
409-740-1517

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Sheet 8 of 23

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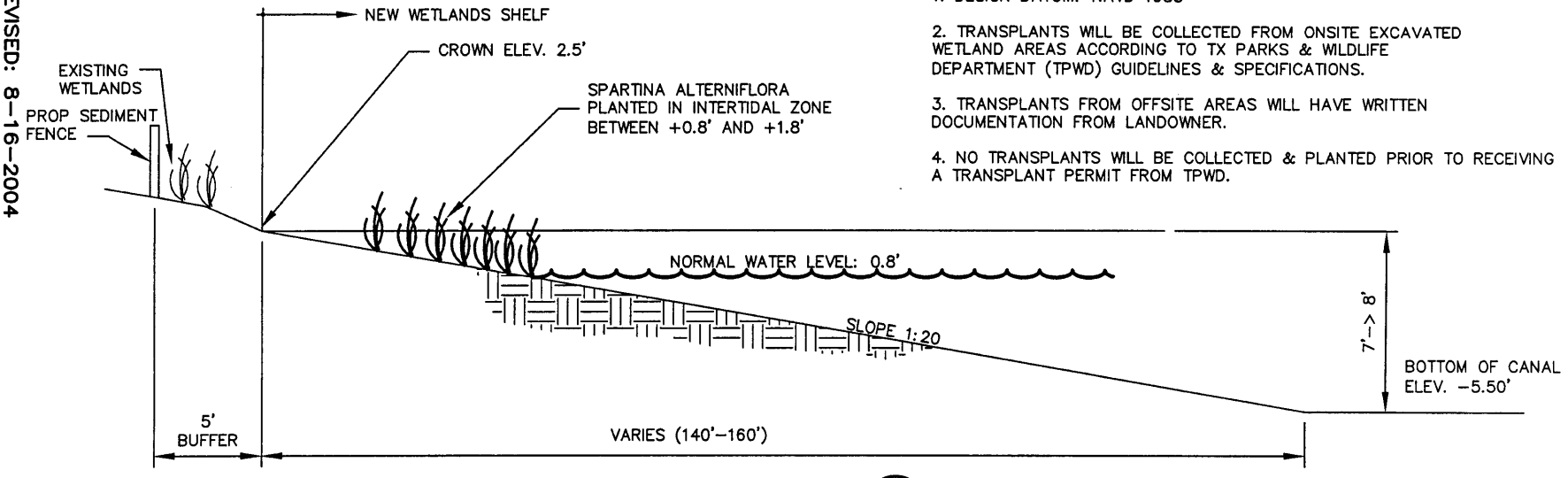
8419 EF LOWRY EXPRESSWAY - SUITE 120
TEXAS CITY, TEXAS 77591
409-935-9986 ❖ FAX: 409-938-8706

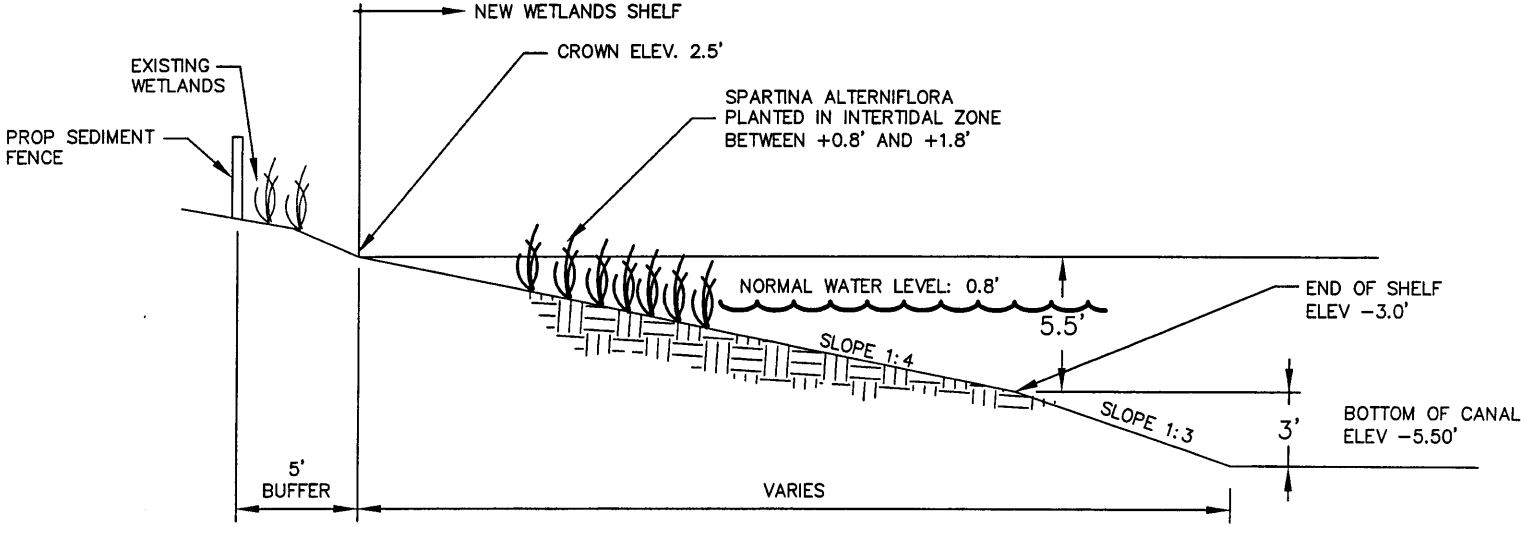
REVISED: 8-16-2004

NOTES:

1. DESIGN DATUM: NAVD 1988
2. TRANSPLANTS WILL BE COLLECTED FROM ONSITE EXCAVATED WETLAND AREAS ACCORDING TO TX PARKS & WILDLIFE DEPARTMENT (TPWD) GUIDELINES & SPECIFICATIONS.
3. TRANSPLANTS FROM OFFSITE AREAS WILL HAVE WRITTEN DOCUMENTATION FROM LANDOWNER.
4. NO TRANSPLANTS WILL BE COLLECTED & PLANTED PRIOR TO RECEIVING A TRANSPLANT PERMIT FROM TPWD.



SHORELINE OF CANAL B1



SHORELINE OF CANAL B2

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	USAGE-SHORELINE	NONE	P01-158	9

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REVISED: 8-16-2004

TOTAL SHORELINE CREATION AREA=1.34 ACRES

NOTES:

1. DESIGN DATUM: NAVD 1988.
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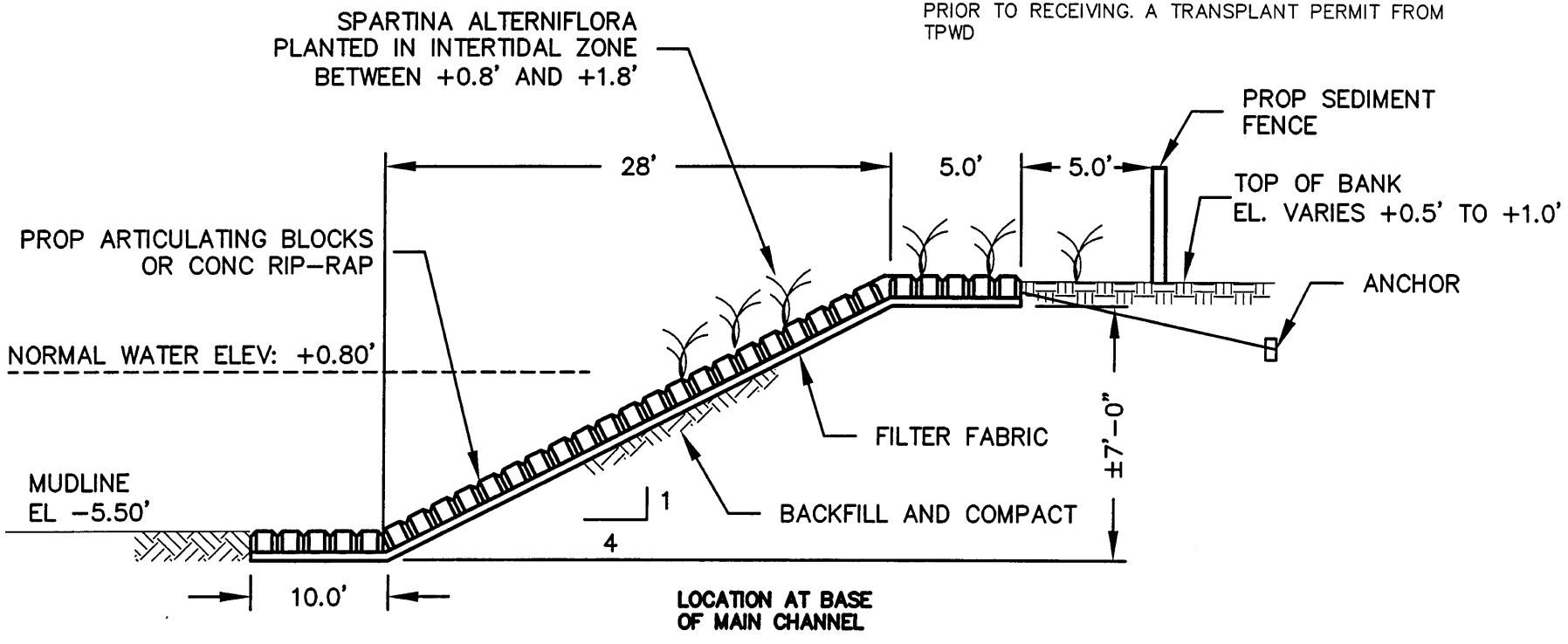
3. TRANSPLANTS FROM OFFSITE LOCATIONS SHALL REQUIRE WRITTEN PERMISSION FROM LANDOWNER.
4. NO TRANSPLANTS WILL BE COLLECTED & PLANTED PRIOR TO RECEIVING. A TRANSPLANT PERMIT FROM TPWD



SECTION - SLOPE PROTECTION

SCALE: 3/16"=1'-0"

C
~

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	USACE-BANKS	3/16"=1'-0"	P01-158	10

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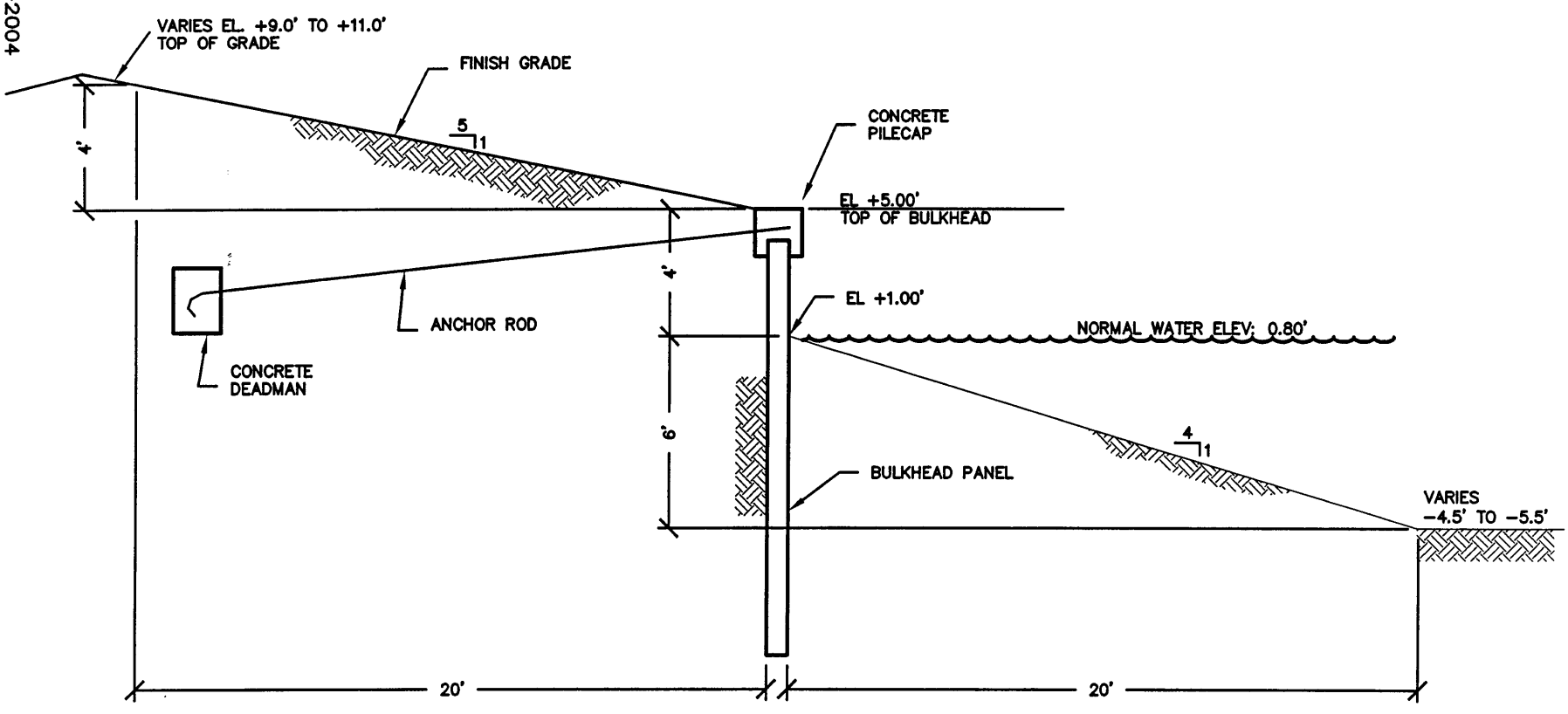

SECTION – BULKHEAD (D)
SCALE: 3/16=1'-0"

NOTE: DATUM REFERENCED TO NAVD 1988.

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	USACE-BULKHEAD	3/16"=1'-0"	P01-158	11

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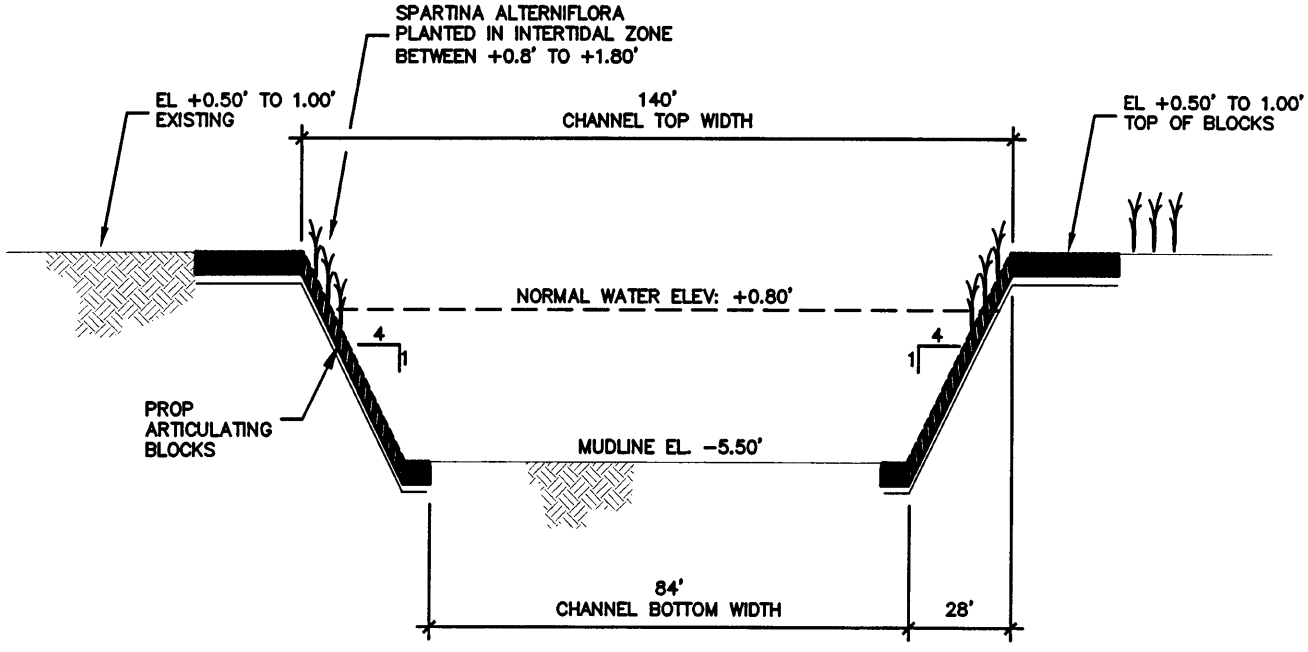
REVISED: 8-16-2004



SECTION – SLOPED CHANNEL

E
~

NOTES:

1. DESIGN DATUM: NAVD 1988

2. TRANSPLANTS WILL BE COLLECTED FROM ONSITE EXCAVATED WETLAND AREAS ACCORDING TO TX PARKS & WILDLIFE DEPARTMENT (TPWD) GUIDELINES & SPECIFICATIONS.

3. TRANSPLANTS FROM OFFSITE AREAS WILL HAVE WRITTEN PERMISSION FROM LANDOWNER.

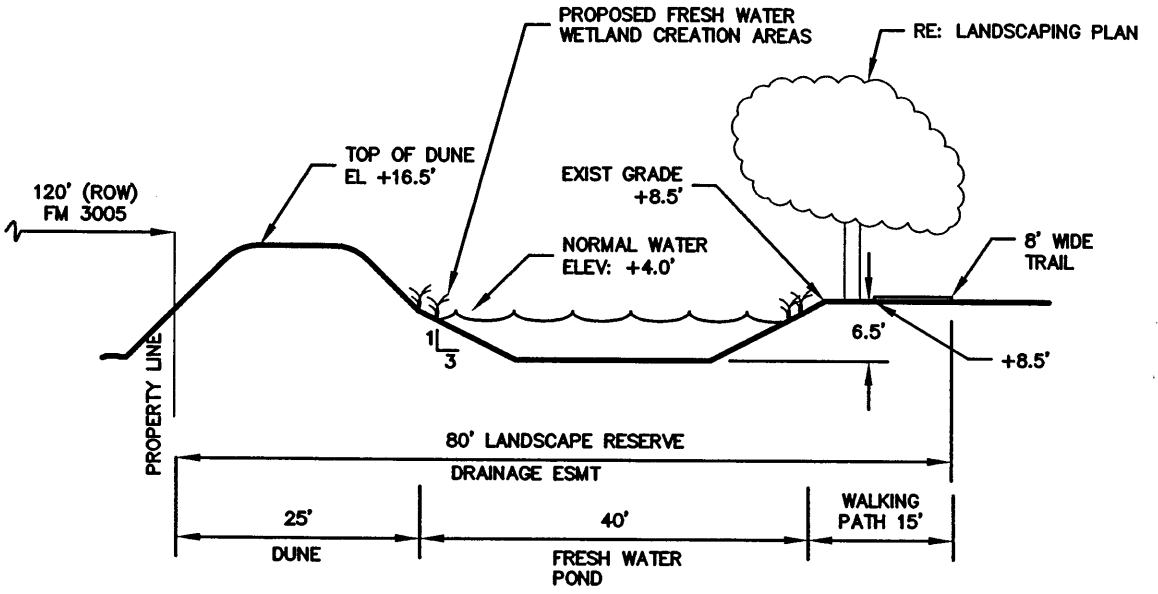
4. NO TRANSPLANTS WILL BE COLLECTED & PLANTED PRIOR TO RECEIVING A TRANSPLANT PERMIT FROM TPWD.

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	USACE-CHANNEL	1/2"=1'-0"	P01-158	12

TOTAL FRESHWATER CREATION AREA= 2.16 ACRES

TOTAL FRESH WATER POND AREAS= 3.45 ACRES



SECTION– LANDSCAPE RESERVE/RETENTION POND

SCALE: 1:20

F

NOTE: ALL ELEVATIONS REFER TO NAVD 1988.

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Ross Novelli, Jr.
Sheet 13 of 23

REVISED: 8–16–2004

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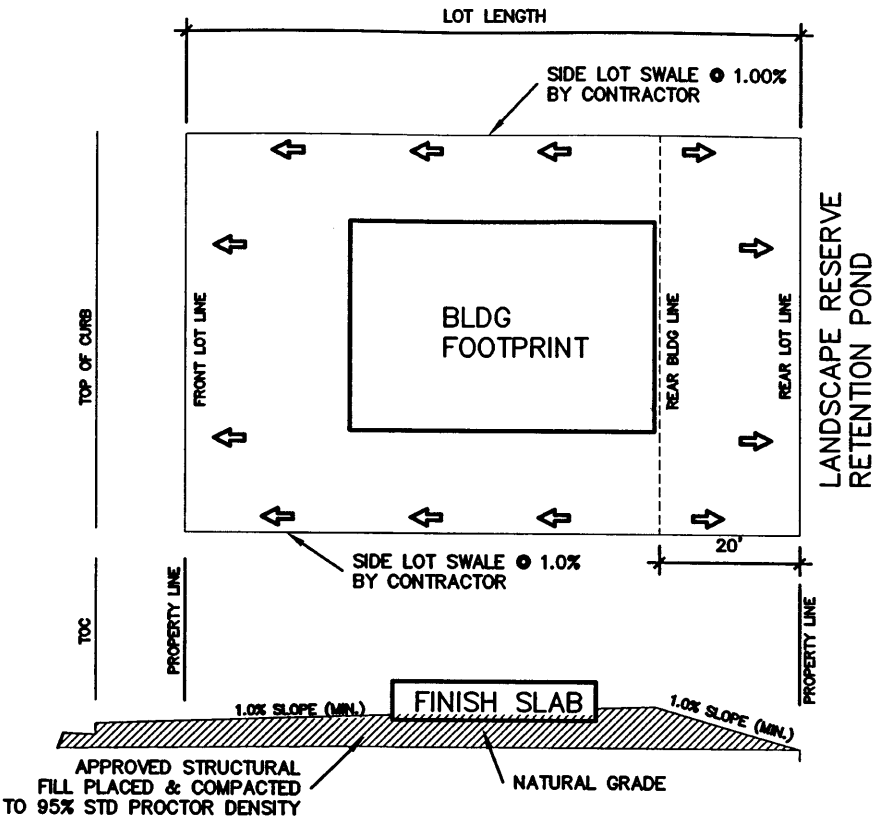
8419 EF LOWRY EXPRESSWAY - SUITE 120
TEXAS CITY, TEXAS 77591
409-935-9986 ❖ FAX: 409-938-8706

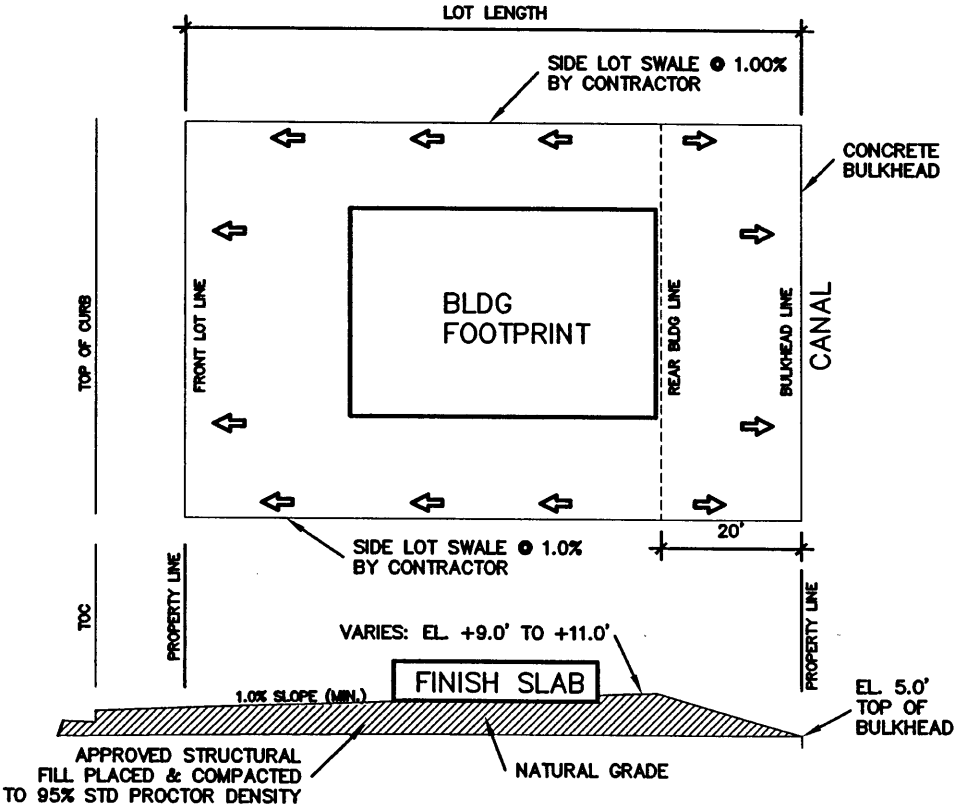
SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08–16–04	USACE–LANDSCAPE	1:20	P01–158	13

TYPE 'A' DRY LOT GRADING DETAIL (TYPICAL)



TYPE 'B' CANAL LOT GRADING DETAIL (TYPICAL)



NOTE: DATUM REFERENCED TO NAVD 1988

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22607(01) rev.
Ross Novelli, Jr.
Sheet 14 of 23

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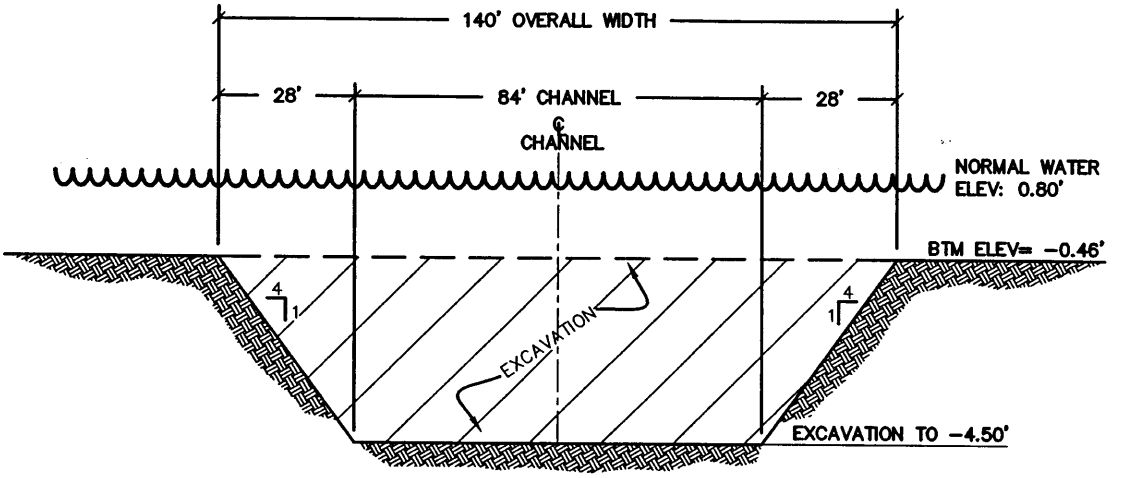
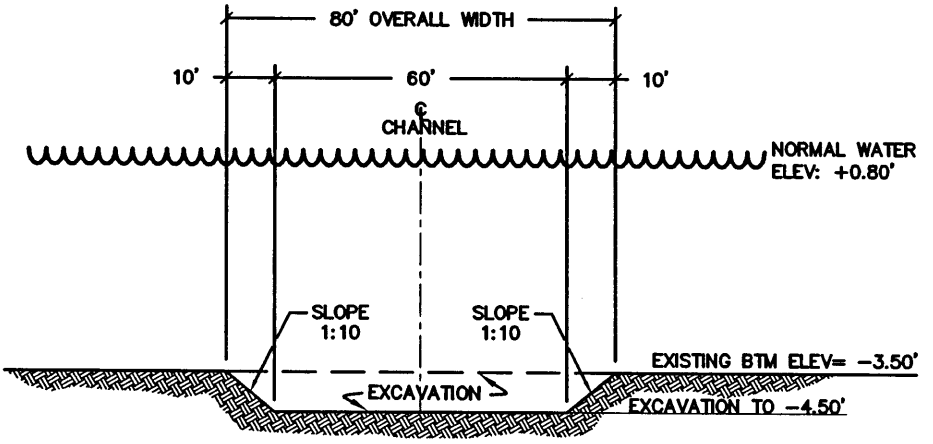
DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	USACE-LOTSLOPES	3/32"=1'-0"	P01-158	14



SECTION – MAIN CHANNEL

SCALE: HORZ 1"=40' 1"=4' VERT

V2



SECTION – MAIN CHANNEL

SCALE: HORZ 1"=40' 1"=4' VERT

V1

NOTE: DATUM REFERENCED TO NAVD 1988.

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DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08–16–04	USACE–CHANNEL	1:40	P01–158	15

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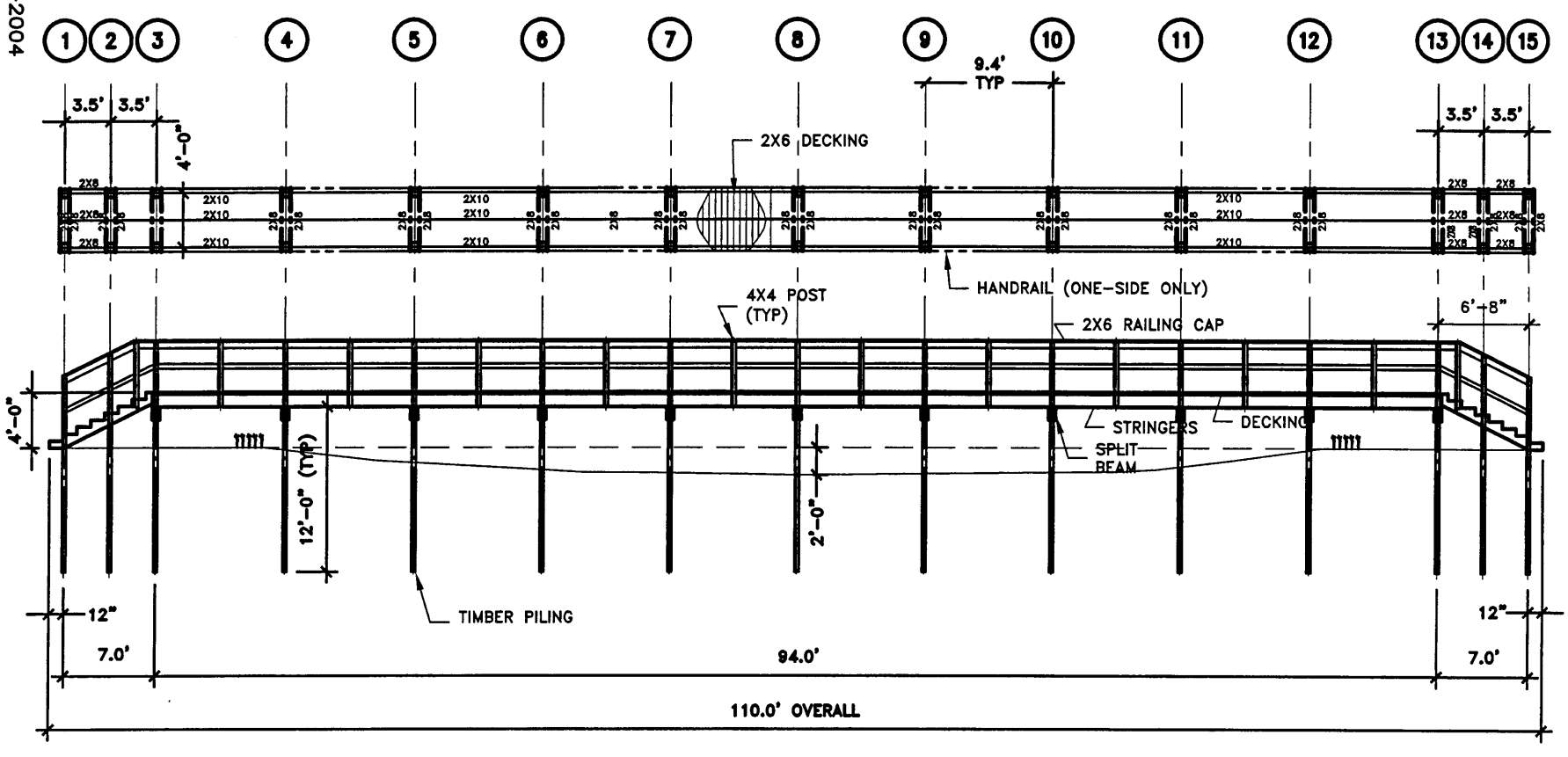

PEDESTRIAN WALKWAY

NOTE:
1.) PIER SHALL BE CONSTRUCTED MINIMUM 24" OVER EXISTING SPARTINA CORDGRASS
2.) PROVIDE 1/2" GAP BETWEEN DECK BOARDS

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	USACE-PIER	NONE	P01-158	16

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NOTES:

1. DESIGN DATUM: NAVD 1988

2. TYPICAL MOUND SHALL BE 200 FEET IN DIAMETER AND PLANTED WITH SMOOTH CORDGRASS (SPARTINA ALTERNIFLORA) ON 3 FEET CENTERS.

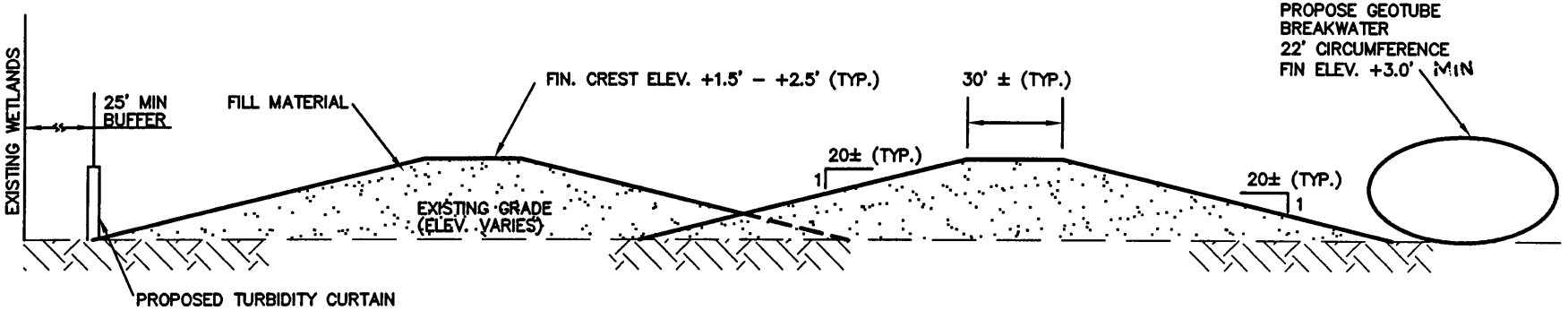
3. THE NORTHERN MOUNDS SHALL HAVE FINISH GRADE ELEVATION OF +3.5 FEET. THE OUTER BANK SHALL BE PLANTED ON A DENSER INITIAL RATIO OF 60% FOR NORTH WIND PROTECTION.

4. TRANSPLANTS WILL BE COLLECTED FROM ONSITE EXCAVATED WETLAND AREAS ACCORDING TO TX PARKS & WILDLIFE DEPARTMENT (TPWD) GUIDELINES & SPECIFICATIONS.

5. TRANSPLANTS FROM OFFSITE WETLAND AREAS WILL HAVE WRITTEN DOCUMENTATION FROM LANDOWNER.

6. NO TRANSPLANTS WILL BE COLLECTED & PLANTED PRIOR TO RECEIVING A TRANSPLANT PERMIT FROM TPWD.

TOTAL AREA OF MOUNDS TO BE CREATED:	8.98 ACRES
TOTAL AREA OF INTERTIDAL CREATION WETLAND AREA 0.50% OF SURFACE AREA=	4.49 ACRE



TYPICAL SECTION – BENEFICIAL USE HABITAT MOUNDS X

SCALE: NONE

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
07-22-04	USACE-MOUND	NONE	P01-158	17

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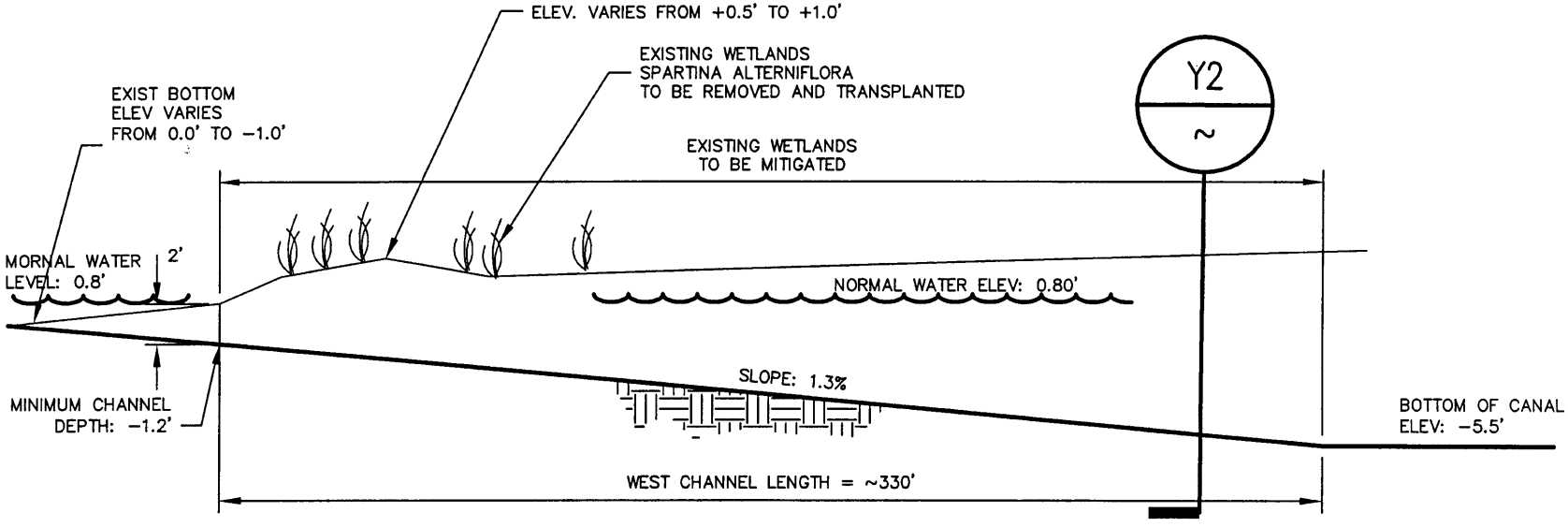
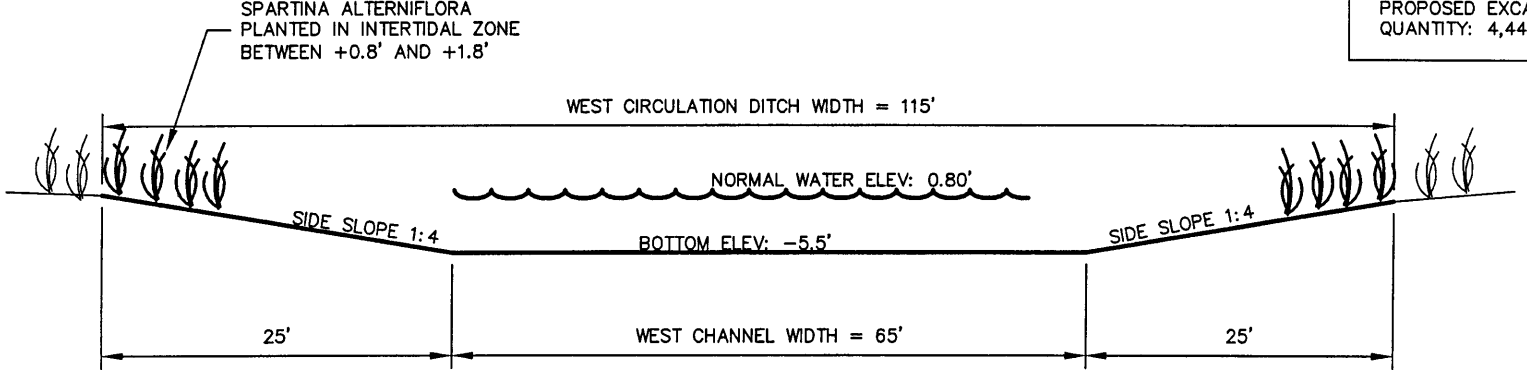
NOTES:

1. DESIGN DATUM: NAVD 1988



SECTION: CIRCULATION CHANNEL Y1 ~

PROPOSED EXCAVATED
QUANTITY: 4,440 CY



SECTION: CIRCULATION CHANNEL Y2 ~

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	USACE-CHANNEL	1/8"=1'-0"	P01-158	18

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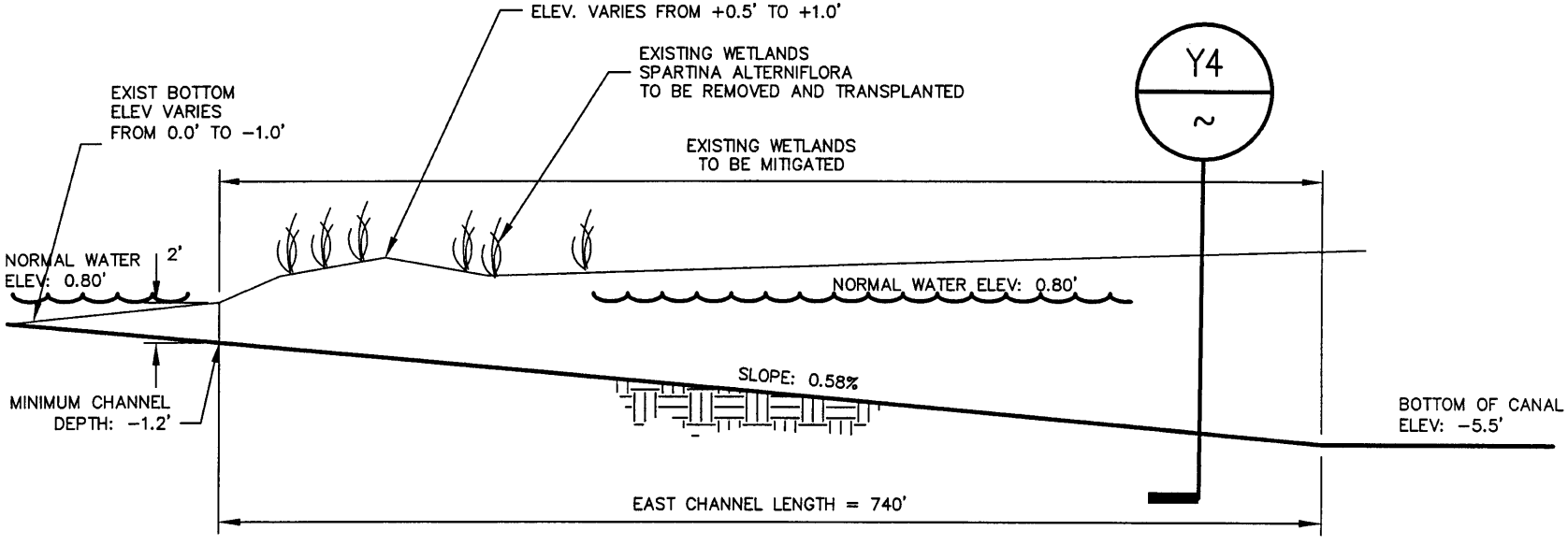
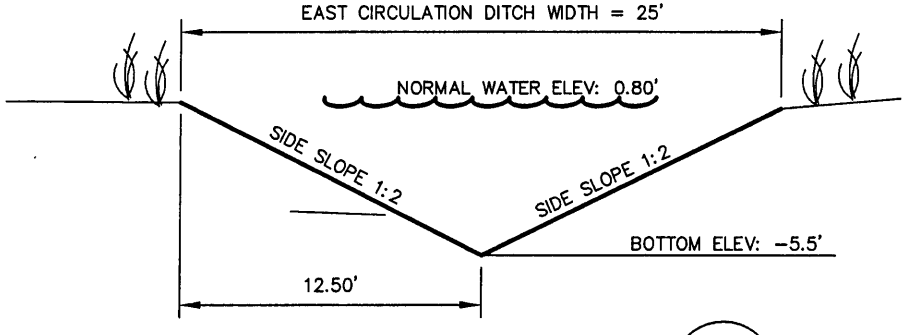


SECTION: CIRCULATION CHANNEL Y3 ~

PROPOSED EXCAVATED
QUANTITY: 1,330 CY



SECTION: CIRCULATION CHANNEL Y4 ~

NOTES:

1. DESIGN DATUM: NAVD 1988

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	USACE-CHANNEL	1/8"=1'-0"	P01-158	19

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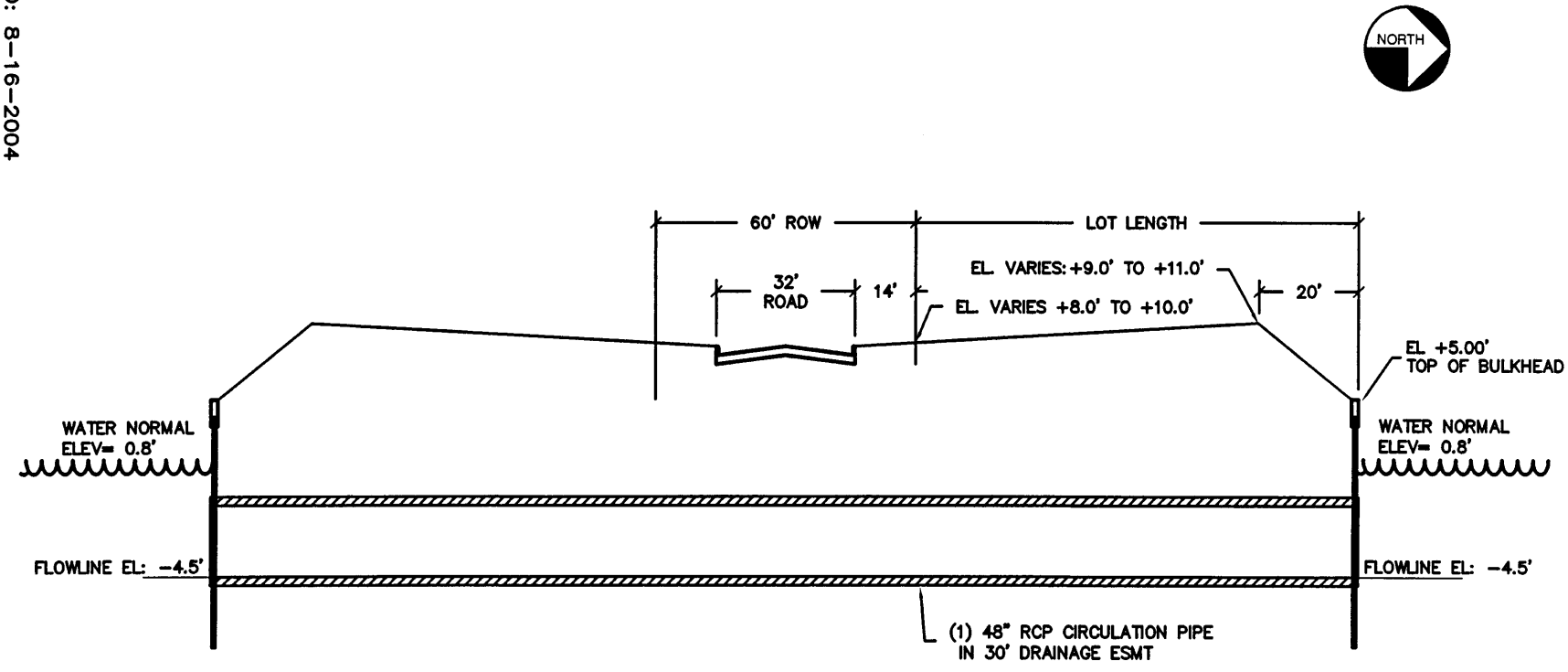

SECTION – CIRCULATION CULVERTS

SCALE: HORZ 1"=40' 1"=4' VERT

NOTE: DATUM REFERENCED TO NAVD 1988.

SUNSET COVE SUBDIVISION
SUNBIRD DEVELOPMENT, LP.
GALVESTON, TEXAS

DATE:	FILENAME:	SCALE:	PROJ #:	SHEET
08-16-04	USACE-CIRCULATION	1:40	P01-158	20

MITIGATION PLAN
SUNSET COVE SUBDIVISION

The proposed mitigation site is based on the wetland determination and delineation conducted by Andy R. Bouse – Wetland Consultant that was submitted to the USACE in September 2003 and verified by the USACE in October 2003.

The following is a summary of the mitigation for the proposed development. The estimated breakdown of the proposed areas to be excavated is shown on Sheets 03, 04 and 05 of the application. The entire mitigation plan has been redesigned per comments from federal and state agencies.

1. **Freshwater Wetlands and Ponds**: The total surface area of the three (3) impacted freshwater ponds is 3.10 acres. New linear freshwater ponds will be created (3.45 acres) to mitigate the three (3) existing freshwater ponds.

   Impacts to isolated wetlands of 0.39 acres will be filled using sand from site. Impacts to isolated and fringe wetlands that will be excavated will total 1.12 acres. Total impacted freshwater wetlands is 1.51 acres. Creation of 2.16 acres of new fringe wetlands is proposed to mitigate these impacts.

2. **Intertidal Saltwater Wetlands**: The total impacted intertidal saltwater wetland areas to be excavated are approximately 5.09 acres. Approximately 5.54 acres of new shoreline wetlands areas will be created.

   The material mechanically excavated from the main channel (22,600 CY), west circulation channel (4,440 CY) and east circulation channel (1,330 CY) will be relocated to help with shoreline creation. The proposed depth of the east and west circulation channels shall be minimum -1.2 feet depth (1988 NAVD datum).

   Approximately 2 inches of the wetland topsoil will be spread into the shoreline creation area to increase success of transplanting into this area. All grass will be used for transplants in the beneficial use area and shoreline creation areas.

3. **Dredging and Beneficial Creation Site**: The proposed dredging activities will cover approximately 5.16 acres and total 18,535 CY. The excavated material will be used for construction of breakwaters and placement of dredging material to creation habitat mounds. Approximately 8.98 acres of total submerged area will be covered by breakwaters and habitat mounds of which 4.49 acres (50% of the total surface area of the mounds) that are tidally influenced. All channel areas will be marked per USCG requirements.

   Approximately 1,350 linear feet of breakwaters will be constructed using geotubes filled with dredged sandy material. Dredged material will be placed between the breakwaters and the existing wetland fringe. Approximately 2,000 CY of dredged material will be used to fill the geotubes and approximately 16,535 CY will be used to construct the habitat mounds. Additional material to fill the geotubes will be supplied from an upland source if needed. A turbidity curtain will be utilized for containment of sand migration form dredging activities.

4. **Conservation Easement**: Approximately 30.94 acres of project site will be placed into a conservation easement. These areas included intertidal saltwater wetlands, freshwater ponds, and coastal plains, providing a valuable eco tone area to maintain productivity of existing wetlands.

   The boundaries of the conservation easement and wetland areas to be created by this mitigation plan will be field staked. The easement will be deeded to Sunset Cove Homeowners Association.

   A nature trail, which will be a mowed path, and a gazebo for bird watching will be in this area. A bridge for Texas A&M access to wetland areas will be constructed across westerly circulation channel, plans are attached

5. **Upland Excavations**: The material excavated from the inland upland areas shall be used to elevate the proposed development acreage or placed on adjacent tract for future development. All topsoil will be scraped and stockpiled to be replaced over all filled areas, upon completion of filling activities. Concrete bulkheading, utilizing panels from 12-16 feet, will be installed in all channel areas.

6. **Drainage:** The entire subdivision will have storm sewers to channel rainwater to freshwater mitigation areas, before overflow discharge into canal system. The interior canal has two platted drainage easements for circulation, containing 48 inch reinforced concrete pipe.

7. **Texas A&M University Galveston:** Developer/Sunset Cove has agreed to fund a graduate student for research of impacts from subdivision, positive/negative for a period of 5 years, at a cost of $115,000.00. Furthermore, Developer/Sunset Cove has agreed to donate $ 75,000.00 towards establishment of a field research station on 3.37 acres of donated land from Developer/Sunset Cove.

Mitigation and Beneficial Uses Monitoring Parameters (MABUMP):

1. A transplant survival survey of the planted mitigation area will be performed within 60 to 90 calendar days or agency recommendations following the initial planting effort.

2. If at least 50% survival of transplants is not achieved in 60 to 90 calendar days of planting, a second planting effort will be completed within 60 calendar days of completing the initial survival survey.

3. If optimal seasonal requirements for re-planting targeted species are not suitable when replanting would be required, a re-planting schedule will be submitted for approval.

4. If after one year from the initial planting effort (or subsequent planting efforts), the site does not have at least 35% aerial coverage of targeted vegetation; those areas that are not vegetated will be replanted using the original planting specifications.

5. If after two (2) years from the initial planting effort, or subsequent planting efforts, the site does not have at least 70% aerial coverage of targeted vegetation, those areas that are not vegetated will be replanted using the original planting specifications.

6. Monitoring reports will be submitted to the U.S. Army Corps of Engineers (USACE) Galveston District at 6 months, 1 year, and 2 year intervals following their initial transplanting effort or subsequent replanting efforts. Photos of the mitigation will be included.

7. Should mitigation be determined to be unsuccessful, according to the herein described parameters, by USACE personnel at the end of the monitoring period, Ross Novelli, Jr. /Sunset Cove/Shelmark Engineering will take corrective measures that may include additional planting, monitoring or additional mitigation measures.

8. If unsuccessful, additional steps will be conducted until the mitigation requirements are satisfied.

Beneficial Use Creation Site

1. The typical mound will be 200 feet in diameter with a finish grade elevation ranging from +1.5 feet to +2.5 feet (NAVD 1988 datum). (See attached Drawing Sheet 17)

2. The finish grade elevation will be +3.5 feet (NAVD 1988) along the islands exposed on the north east corridor. The outer bank will also be planted on a denser initial ratio of 60% initially for north wind

protection. The site will be protected by a 22 foot diameter Geotube with northerly exposure (finished elevation +3.5 feet to +4.0 feet - NAVD 1988 datum)

3. The design elevations are based on compacted (in-place) excavated materials.

4. The planting plan will utilize the transplanting of smooth cord grass (Spartina Alterniflora) on three (3) feet centers.

5. Transplants will be collected from onsite excavated wetland areas according to Texas Parks and Wildlife Department (TPWD) and Texas General Land Office (TXGLO) guidelines and specifications.

6. Transplants from offsite locations shall require written landowner permission. No transplants will be collected and planted prior to receiving a transplant permit from TPWD.

7. All proposed areas for the conservation easement associated with the project will be included in the monitoring plan to ensure that these areas are not degraded from secondary impacts during construction activities.

Additional Measures:

1. The Home Owners Association will install signage in English/Spanish, to areas where submerged aquatic vegetation (SAV's) exists to minimize impacts from boaters. The Sunset Cove Homeowners Association will also educate homeowners/builders about the fragile eco system to make sure prudent decisions are made to negate any negative impacts.

2. The back 20 feet of filled lots will be covered with paspalum grass upon completion of filling activities to control runoff. Silt fencing will be installed as a buffer around all filled areas to control soil runoff.

3. The subdivision deed restrictions will state that no nitrogen fertilizers will be allowed to be used within the subdivision. An education program to highlight the use of nature friendly fish emulsions for fertilizer will also be implemented. The planting of native beneficial use trees/plants will be promoted utilizing common greenhouse to propagate these species.

4. In the deed restrictions - the use of native grass such as Seashore paspalum will be required instead of Bermuda grass or St. Augustine grasses that require more nitrogen and more water.